Consideration of Recommendation of Petition Regarding the Possession, Breeding, and Sale of Garter Snakes; Administrative Cause No. 10-175D

INDIANA DEPARTMENT OF NATURAL RESOURCES
DIVISION OF FISH AND WILDLIFE

Common (Eastern) Gartersnake Possession and Breeding

Background Information

The Natural Resources Commission received the following request to allow additional color morphologies of the common (eastern) gartersnake to be bred in captivity and sold in Indiana.

The request was as follows:

> *To whom it may concern,*
> *I'm not sure that I am writing the correct person or not, but I am inquiring about some of the reptile laws. In the law it states that native species that are albino, luecistic, and xanthic specimens maybe bought and sold in Indiana. I am a Garter snake enthusiast and would like to breed some of the other color morphs of the Thamnophis Sirtalis or eastern garter snake. Over the past few years, garter snakes have grown in popularity as pets and are a nice alternative to larger reptiles such as boas and pythons. I believe if we could amend the law to allow Indiana residents to keep and breed more mutations of the sirtalis that we would actually take more pressure off of the wild populations because the public could buy the beautiful snakes legally. I would be happy to help compile a list of many of the popular color morphs if such an amendment could be made.*
>
> *Please let me know if I am writing to the wrong person, or forward this to who would be concerned with such an issue. I would also like to be contacted if I can be of any assistance to the above proposal.*
>
> *Thank you very much for your time.*
>
> *Sincerely,*
> *Jason Stoots*

The petitioner, Mr. Stoots, would specifically like to breed and sell the following color morphologies of the common (eastern) gartersnake and plain gartersnake:

> Eastern Garter Snake (*Thamnophis sirtalis sirtalis)* Morphs
>
> Anerythristic – Anerythristic specimens lack any yellow or red in their coloration and are black and gray. There has only been a handful of these ever found, and to date this morph has not proven to be inheritable.

Erythristic (Extreme Red) – The erythristic morph was originally found in southeastern parts of the United States. These specimens are extremely red in color when the brown or ground color would be on a "normal" garter snake. This morph is a lot like the hypomelanist trait in other species of reptiles. This is a co-dominant morph meaning when bred to another snake, half of the babies will be visual erythristic specimens.

Flame – The flame trait was originally found in Canada, specifically the province of Quebec. This morph is also a co-dominant trait. Flame specimens have bright orange/red sides going up about half of their bodies. They usually still have a definitive dorsal stripe that is pale yellow.

Melanistic – This morph is a completely black specimen with only a small white patch under the chin of the snake.

Piebald – Piebald specimens have normal coloration, but have patches of milk white spots randomly speckled throughout the body.

Silver – The silver morph was originally caught in northern New York. This morph has a silver/grey sometimes almost lavender back round color with darker spots throughout the body. This trait also includes ruby red eyes, so it may be considered some form of albinism.

Plains Garter Snake *(Thamnophis radix)* Morphs

Anerythristic – Same as described above.

Axanthic – Axanthic specimens are a lot like the anerythristics. They are slate gray and black/blue in coloration. One easy way to tell the difference between the two morphs is that axanthics have a lime green dorsal stripe whereas the anerythristics dorsal stripe is slate gray. This is also a co-dominate morph.

Erythristic (Extreme Red) – Same as described above.

Hypomelanistic – Hypomelanistic specimens lack some of the black pigment in their scales. Sometimes referred to as "ghost" the animals have a "washed out" coloration. This trait also increases the natural yellow coloration in this species.

Piebald – Same as described above.

Current Laws

The Indiana DNR currently allows the common (eastern) and plains gartersnakes to be taken from the wild with a hunting or fishing license. A person can take no more than four (4) from the wild per species and possess no more than 4 per species.

However, the DNR does not currently allow the sale of the common (eastern) garter snake (Thamnophis sirtalis), except with the color morphologies noted below.

> 312 IAC 9-5-7 Sale of reptiles and amphibians native to Indiana
> …(f) A reptile or amphibian that is not on a state or federal endangered or threatened species list and with a color morphology that is:
> (1) albinistic (an animal lacking brown or black pigment);
> (2) leucistic (a predominately white animal); or
> (3) xanthic (a predominately yellow animal);
> is exempted from this section if it was not collected from the wild.

The purpose for allowing these three color morphologies was to continue to allow those that were rarely found in the wild and commonly found in the pet industry to be sold. If one of these color morphologies were found in the wild, the snake would be more vulnerable to predation and not be likely to survive.

Eight native species of snakes can also be sold pursuant to 312 IAC 9-5-9 under a reptile captive breeding license, but these species do not include any of the garter snakes. These species that are allowed to be sold are those that have self-sustaining populations throughout the state and are more common in the pet industry.

Fish and Wildlife Resource Information

The Indiana Division of Fish and Wildlife strives to maintain viable populations of our native species for present and future generations. Due to increased funding and new environmental concerns, research on reptiles and amphibians is currently occurring at a faster pace. The dynamic nature of this research leads to rapidly evolving changes in reptile and amphibian management and regulation.

The sale of garter snakes and other snakes native to Indiana was prohibited in 1998 as the result of effects on our native species through the previously-unlimited collection and sale of native species for the commercial pet trade, as well as for other uses including food and medicine. A multi-year law enforcement investigation also revealed that a large number of reptiles and amphibians were being taken from the wild in Indiana and sold throughout the country, including endangered species.

Garter snakes are found throughout Indiana in a variety of habitats, although they prefer moist, grassy areas near water. They eat earthworms primarily, but will eat small amphibians and other invertebrates. Females give birth to live snakes numbering from 6 to 50 from July to early October, and the young emerge from their hibernacula in late March or April.

Additionally, the continuing threats to amphibians and reptiles include the following:

- Loss of habitat
  The amount of habitat available for amphibians and reptiles in Indiana has decreased over the last century. In fact, scientists believe that approximately 88

percent of Indiana's natural wetlands are gone. It is known that many species depend on wetlands for all or a portion of their life cycle.

- Sensitivity to environmental contaminants
  Increased contaminants in the environment have negative impacts on reproduction in amphibians and reptiles.
- Increased taking
  Taking of amphibians and reptiles for local and especially foreign trade (for food and pets) continues to cause declines in populations.
- Dispersal ability
  Suitable habitat is becoming more fragmented. Habitat fragmentation raises new concerns about the ability of reptiles and amphibians to maintain current populations and recolonize restored habitats.

Recommendation

Per state law in IC 14-22-2-3, the Division of Fish and Wildlife must:

> "(1) Provide for the protection, reproduction, care, management, survival, and regulation of wild animal populations regardless of whether the wild animals are present on public or private property in Indiana."

Furthermore, IC 14-22-2-6(b)(2) states that rules must be based on data relative to the following:

> "(A) The welfare of the wild animal.
> (B) The relationship of the wild animal to other animals.
> (C) The welfare of the people."

Consistent with the authority of the Division of Fish and Wildlife and the process of data review for rules, the Division of Fish and Wildlife recommends not proposing a rule that would allow the breeding and selling of anerythristic, erythristic, flame, melanistic, piebald, silver, anxanthic and hypomelanistic colormorphs of the eastern gartersnake (*Thanmnophis sirtalis)* and plains gartersnake (*T. radix)* for the reasons stated below.

(A) The welfare of the wild animal

Deleterious genes – Albinism and most other atypical pigmentation patterns are considered to be deleterious traits. It is well accepted that these deleterious color patterns reduce the survival probability of the affected specimen in the wild. Other detrimental traits such as vision problems, thermoregulatory problems, stillbirths and malformations are also associated with these aberrant color patterns and affect their survival in captivity. Captive breeding for these aberrant specimens artificially increases the occurrence of these defects in the overall population and does not benefit the welfare of the animals.

Captive inbreeding – Many of these aberrant color patters are rare in nature because they are caused by uncommon recessive genes. In the wild, only a small number of animals receive a recessive gene from both of their parents and thus

express the trait. In the captive situation, only by breeding two albino specimens can the breeder be sure of an entirely albino litter. Other pairing can result in many individuals with typical coloration (some homozygous for normal coloration and some heterozygous in which the normal coloration is dominant) and few individuals with the sought-after aberrant coloration. The percent of atypical specimens can be increased by continued crossing of atypical specimens. This often results in inbreeding and inbreeding's associated problems such as low fertility rate, weak immune system, reduced survival of adult animals and mating problems. Inbreeding problems and production of captive "typical" specimens (see below) are not beneficial to the welfare of the animals.

Captive vs wild caught specimens and enforcement problems – In order to prevent inbreeding problems, "typical colored" specimens are likely to result from captive breeding programs. These typical specimens will have less market value than the aberrantly colored specimens, but they will have a value. They will also be indistinguishable from wild bred animals, thus creating a window of opportunity to capture and sell wild garter snakes. On the other hand, there may be a greater temptation for the breeders or the purchaser to release these less valuable animals if their care becomes inconvenient. The first situation, the sale of wild caught individuals, is not beneficial for the free-ranging population because it could cause unsustainable harvest. The second situation, the release of captive-bred typical specimens, is bad for the free-ranging population because it could increase the frequency of deleterious genes in the population or introduce disease.

(B) The relationship of the wild animal to other animals

Escapes – gene pool impact – Escapes or releases of captive bred animals, including aberrant color morphs and hybrids, can have a negative impact on the gene pool of the free-ranging population. The characteristics promoted in captive situations have already been selected against in a natural situation and can only make the overall population less fit. As free-ranging populations are facing increasing threats such as habitat loss and fragmentation, potential genetic impacts due to release or escape of captive bred animals would not be beneficial to the fitness of the free-ranging animals.

Escapes – disease impacts- Whereas wild reptiles are not disease-free, the release of captive reared animals can introduce them to new pathogens or pathogen strains to which they have no immunity. Novel diseases can decimate a population. Free-ranging populations already face ecological stresses such as habitat loss and fragmentation, as well as pollution. Disease could eliminate a struggling isolated free-ranging population.

Un-wanted animal releases – increased likelihood- Every year the Division of Fish and Wildlife is contacted by people wanting to dispose of reptiles they no longer want. The scenarios vary, but include the following examples: the child

outgrew his interest in the pet snake, the husband and wife are getting divorced and she wants his snake collection out of her house, the young man has a new job and can't take his snakes to the new location, in all cases the only ecologically responsible thing to do is to find another human to take the animal. However, there are not enough people to adopt these unwanted snakes. Because of these reasons (disease, gene pool impact and inhumane fate of most animals released into a novel environment), these animals should not be released to the wild. Captive rearing of aberrant color morphs produces a lot of animals needing human homes and care. Not only are more-valuable, rare, color-morph specimens produced, but many common, normal-variety specimens are also produced. All these animals increase the likelihood that captive animals will be released into free-ranging populations. These releases will not be beneficial to the local population.

(C) The welfare of the people

Rapid and accurate identification of snakes in contact with humans - When a citizen encounters a snake, staff of the Divisions of Fish and Wildlife and Law Enforcement are often called upon provide a risk assessment. Reasonably accurate identification of a particular snake specimen has become more complicated. Some individuals keep exotic snakes. Even with the most responsible keeper, there is always the possibility of escape. With worldwide trade, the unintentional transportation of an exotic snake is possible, albeit remotely possible, when a snake hitches a ride to the US in an international shipment. Whereas DNR personnel can be expected to be familiar with typical native species; they must also consider other sources of snakes when counseling the public. Captive breeding of aberrant color morphs and hybrid animals complicates snake identification and increases the discomfort of many citizens and possibly increases their risk as it may take longer to identify a suspect animal. Captive breeding of color morph garter snakes is not beneficial to the welfare of the people.